

WHAT IS CLAIMED IS:

1. A device for remote maintenance and monitoring of an elevator installation comprising:
  - 5 at least one input for detection of first signals from at least one of an elevator control and a sensor associated with the elevator installation;
  - at least one output of second signals to a telecommunications network; and
  - a processor and a data memory connected to said at least one input and said at least one output and having a set of remote maintenance functions stored
  - 10 in said data memory, said remote maintenance functions including at least one of monitoring of stress measurements in an elevator car, temperature monitoring, and activation of a camera, at least one of said remote maintenance functions being selectively activatable.
- 15 2. The device according to claim 1 wherein said at least one remote maintenance function configures hardware and software of said device and said at least one remote maintenance function is activatable by loading from said data memory into said processor.
- 20 3. The device according to claim 1 wherein said at least one remote maintenance function when activated evaluates said first signals and issues said second signals corresponding with a result of the evaluation.
4. The device according to claim 1 wherein a sensor for sensing one of
- 25 temperature, current, voltage, audio, video, spacing, expansion, leveling, speed, shock, acceleration, vibrations, jolting, moment, pressure, force, light quantity, brightness, filling state, density, magnetic field, moisture, smoke, exhaust gas, taste, odor and conductivity.
- 30 5. The device according to claim 1 including an I/O box connected as an interface between said processor and the elevator installation for converting parallel signals from the elevator control and sensors into serial signals.

6. The device according to claim 5 wherein said I/O box includes one of a plurality of modular interfaces adapted to different proprietary elevator installations, each of said modular interfaces adapted to communicate standardized signals to said processor  
5 so that these elevator installations are operable with said set of remote maintenance functions.

7. The device according to claim 1 wherein said device automatically configures itself and/or self-learns by a learning travel with respect to which of a plurality of inputs  
10 correspond with which of said first signals.

8. The device according claim 1 wherein said device is positioned in one of a box, an intelligent cable and an intelligent plug.

15 9. The device according to claim 8 wherein said box, said intelligent cable and said intelligent plug are adapted to be exchangeably connected with the elevator installation.

10. The device according to claim 1 including a plug frame having a plurality of  
20 bays, a different module retained in each of said bays, one of said modules including said processor, and back panel inserted into said plug frame and providing serial communication between said modules.

11. The device according to claim 1 including at least one external apparatus  
25 connected with said device, said external apparatus being one of a camera, microphone, automatic system for access control, identification and allocation of elevator cars and an automatic system for safety monitoring of the elevator installation.

12. A method for remote maintenance and monitoring of an elevator installation  
30 comprising the steps of:

- a) storing a set of remote maintenance functions;
- b) selectively activating a remote maintenance function of the set;

- c) detecting a first signal from a elevator control and/or from a sensor and being related to the activated remote maintenance function; and
- d) communicating a second signal to a telecommunications network in response to the first signal.

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13. The method according to claim 12 including a step of adding at least one remote maintenance function to the set or removing at least one remote maintenance function from the set.

10        14. The method according to claim 13 wherein said step of adding or removing is performed by transferring the at least one remote maintenance function by a telecommunications network.

15        15. The method according to claim 12 including performing said step b) without operational interruption of the elevator installation or another of the remote maintenance functions which is not affected by the activation.

16. The method according to claim 12 wherein the remote maintenance functions are each related to at least one of learning travels, test travels, journey numbers, numbers  
20 of door openings, open door, remote alarm, disturbance reports, remote control of specific elevator functions, adaptation of elevator parameters, a state of the elevator, a state of the door, a state of specific relays, elevator position, travel direction, remote action on the elevator state and elevator data, access authority, statistical analysis of traffic, state of the supporting cables, stopping accuracy, a camera, temperature sensors,  
25 smoke detectors, remote diagnosis, remote repair, reset of the elevator control, maintenance instructions, checking of an external point, measurement and evaluation of vibrations, voltage, current, brightness, lighting, temperature, position of the car, and direct action on specific relay outputs.

30        17. The method according to claim 12 including a step of communicating the second signal to a service center which regulates operation of the elevator installation and monitors and records the maintenance state of the elevator installation.

18. The method according to claim 12 wherein said step c) is synchronized with travel of an elevator car of the elevator installation.

5        19. The method according to claim 12 including performing said step c) automatically at regular intervals.

20. The method according to claim 12 including performing said step c) by converting the first signal to a standard form with an interface and performing said step  
10    d) in response to the first signal in the standard form.